Claims:

1. A method for managing Radio Access Network (RAN) resources to service forward link packet data transmissions, the method comprising:

receiving a data packet from a packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

mapping the packet service quality level indicator to a corresponding set of RAN resources;

attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS; and

upon an allocation of the corresponding set of RAN resources, forwarding the data packet to the MS.

2. The method of claim 1, further comprising, upon a partial allocation of the corresponding set of RAN resources remarking the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial allocation of the corresponding set of RAN resources.

3. The method of claim 2, further comprising:

receiving another data packet from the packet data network directed toward the MS that includes the packet service quality level indicator; and

remarking the another data packet with the new packet service quality level indicator.

4. The method of claim 1, wherein mapping the packet service quality level indicator to the corresponding set of RAN resources comprises:

determining that the packet service quality level indicator requires a specific performance level; and

determining a corresponding set of RAN resources that will satisfy the specific performance level.

5. The method of claim 1, further comprising:

determining whether the corresponding set of RAN resources may be allocated to the MS; and

when the corresponding set of RAN resources may not be allocated to the MS, not attempting to allocate the full corresponding set of RAN resources.

6. The method of claim 1, wherein mapping the packet service quality level indicator to the corresponding set of RAN resources comprises:

determining that the packet service quality level indicator requires a differential service level;

determining a plurality of sets of RAN resources supported for the MS; and

selecting a one of the plurality of sets of RAN resources supported for the MS that satisfies the

differential service level.

7. The method of claim 1, further comprising:

receiving another data packet from the packet data network directed toward the MS that includes a different packet service quality level indicator;

mapping the different packet service quality level indicator to a corresponding different set of RAN resources;

attempting to allocate the corresponding different set of RAN resources to the MS; and

upon an allocation of the corresponding different set of RAN resources, forwarding the data packet to the MS.

8. The method of claim 1, further comprising notifying a Packet Data Servicing Node (PDSN) of a packet service quality level corresponding to an allocated set of RAN resources.

9. A method for managing Radio Access Network (RAN) resources to service reverse link packet data transmissions, the method comprising:

receiving a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for a coupled packet data network and including a packet service quality level indicator;

determining a set of RAN resources that have been allocated to service the transmission of the data packet;

mapping the allocated set of RAN resources to a RAN service quality level indicator; and

when the packet service quality level indicator does not correspond to the RAN service quality level indicator, remarking the data packet with a new packet service quality level indicator corresponding to the RAN service quality level indicator.

10. The method of claim 9, further comprising:

receiving another data packet from the MS intended for the coupled packet data network that includes the packet service quality level indicator; and

remarking the another data packet with the new packet service quality level indicator.

11. The method of claim 9, wherein mapping the allocated set of RAN resources to the RAN service quality level indicator comprises:

determining that the packet service quality level indicator requires a specific performance level; and

determining a RAN service quality level indicator that maps to the specific performance level.

12. The method of claim 9, wherein mapping the allocated set of RAN resources to the RAN service quality level indicator comprises:

determining that the packet service quality level

indicator requires a differential service level;

determining a RAN precedence level corresponding to the allocated set of RAN resources;

determining a plurality of RAN precedence levels supported for the MS; and

determining a differential RAN service quality level indicator that corresponds to the allocated set of RAN resources.

13. The method of claim 9, further comprising:

receiving another data packet from the MS serviced by the RAN, the another data packet intended for the coupled packet data network and including a different packet service quality level indicator;

determining a different set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

mapping the different set of allocated RAN resources to a different RAN service quality level indicator; and

when the different packet service quality level indicator does not correspond to the different RAN service quality level indicator, remarking the another data packet with another packet service quality level indicator corresponding to the different RAN service quality level indicator.

14. A Packet Data Serving Node (PDSN) that interfaces a Radio Access Network (RAN) to a packet network, the PDSN comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PDSN to the packet network;

a second interface coupled to the processor bus that interfaces the PDSN to the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive a data packet from the packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PDSN to interact with the RAN to map the packet service quality level indicator to a corresponding set of RAN resources;

a plurality of instructions that, upon execution by the processor, cause the PDSN to interact with the RAN in attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon an allocation of the corresponding set of RAN resources, forward the data packet

to the MS via the RAN.

15. The Packet Data Serving Node of claim 14, wherein the set of instructions further comprise a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon a partial allocation of the corresponding set of RAN resources, remark the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial allocation of the corresponding set of RAN resources.

16. The Packet Data Serving Node of claim 15, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive another data packet from the packet data network directed toward the MS that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to remark the another data packet with the new packet service quality level indicator.

17. The Packet Data Serving Node of claim 14, wherein when the PDSN maps the packet service quality level indicator to the corresponding set of RAN resources:

the PDSN determines that the packet service quality level indicator requires a specific performance level; and

the PDSN determines that the corresponding set of RAN

resources will satisfy the specific performance level.

18. The Packet Data Serving Node of claim 14, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to determine whether a partial set of RAN resources has been allocated to the MS; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to remark the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial set of RAN resources that have been allocated to the MS.

19. The Packet Data Serving Node of claim 14, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive another data packet from the packet data network directed toward the MS that includes a different packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to interact with the RAN to map the different packet service quality level indicator to a corresponding different set of RAN resources.

20. A Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network

(RAN) and interfaced to a Packet Data Serving Node (PDSN), the Base Station Controller comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the BSC to the PDSN;

a second interface coupled to the processor bus that interfaces the BSC to remaining portions of the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the processor, cause the BSC to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the BSC to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the

RAN service quality level indicator.

21. The Base Station Controller of claim 20, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive another data packet from the MS intended for the PDSN that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the BSC to indicate to the PDSN the new packet service quality level indicator.

22. The Base Station Controller of claim 20, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

23. The Base Station Controller of claim 20, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the BSC:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

24. The Base Station Controller of claim 20, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to respond to the PDSN servicing the data packet with an indication of a packet service quality level supported by the RAN.

25. A Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the Packet Control Function comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PCF to the BSC;

a second interface coupled to the processor bus that interfaces the PCF to the PDSN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by

the processor, cause the PCF to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the processor, cause the PCF to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PCF to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

26. The Packet Control Function of claim 25, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive another data packet from the MS intended for the PDSN that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PCF to indicate to the PDSN the new packet service quality level indicator.

27. The Packet Control Function of claim 25, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the new packet service quality level indicator requires a specific performance level; and

determines a service quality level indicator that maps exactly to the allocated set of RAN resources.

28. The Packet Control Function of claim 25, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential RAN service quality level indicator that corresponds to the allocated set of RAN resources.

29 The Packet Control Function of claim 25, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to respond to the PDSN servicing the data packet with an indication of a packet service quality level supported by the RAN.

30. A Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the Base Station Controller comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the BSC to the PDSN;

a second interface coupled to the processor bus that interfaces the BSC to remaining portions of the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to attempt to allocate the set of RAN resources that would satisfy the packet service quality level; and

a plurality of instructions that, upon execution by the processor, cause the BSC to indicate to the PDSN allocation of the set of RAN resources was successful.

31. The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a full allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is met.

32. The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a partial allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is partially met.

33. The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a failed allocation of the corresponding set of RAN resources, to indicate to the PDSN that the allocation of RAN resources has failed.

34. The Base Station Controller of claim 30, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level

indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

35. The Base Station Controller of claim 30, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

36. A Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the Packet Control Function comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PCF to the BSC;

a second interface coupled to the processor bus that

interfaces the PCF to the PDSN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to attempt to allocate the set of RAN resources that would satisfy the packet service quality level; and

a plurality of instructions that, upon execution by the processor, cause the PCF to indicate to the PDSN allocation of the set of RAN resources was successful.

37. The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a full allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is met.

38. The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a partial allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is partially met.

39. The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a failed allocation of the corresponding set of RAN resources, to indicate to the PDSN that the allocation of RAN resources has failed.

40. The Packet Control Function of claim 36, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

41. The Packet Control Function of claim 36, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level

indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

42. A computer readable medium that stores a plurality of software instructions for execution by a Packet Data Serving Node (PDSN) that interfaces a Radio Access Network (RAN) to a packet network, the computer readable medium comprising:

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to receive a data packet from the packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to interact with the RAN to map the packet service quality level indicator to a corresponding set of RAN resources;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to interact with the RAN in attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS; and

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to, upon an allocation of the corresponding set of RAN resources, forward the data packet to the MS via the RAN.

43. A computer readable medium that stores a plurality of software instructions for execution by a Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the BSC, cause the BSC to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the BSC, cause the BSC to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the BSC, cause the BSC to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service

quality level indicator corresponding to the RAN service quality level indicator.

44. A computer readable medium that stores a plurality of software instructions for execution by a Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the PCF, cause the PCF to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the PCF, cause the PCF to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

45. A computer readable medium that stores a plurality of software instructions for execution by a Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the BSC, cause the BSC to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to attempt to allocate the set of RAN resources that would satisfy the packet service quality level; and

a plurality of instructions that, upon execution by the BSC, cause the BSC to indicate to the PDSN allocation of the set of RAN resources was successful.

46. A computer readable medium that stores a plurality of software instructions for execution by a Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the PCF, cause the PCF to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to attempt to allocate the set of RAN resources that would satisfy the packet service quality level; and

a plurality of instructions that, upon execution by the PCF, cause the PCF to indicate to the PDSN allocation of the set of RAN resources was successful.